

WHAT IS CLAIMED IS:

- 1 1. A nozzle of a laser processing head for laser cutting and laser welding, the nozzle
2 comprising:
3 a laser beam outlet for directing a laser beam towards a processing location of a
4 workpiece to be processed;
5 a first gas supply channel for supplying a cutting gas towards the processing location
6 of a workpiece to be processed when the laser processing head is used for laser cutting;
7 and
8 a second gas supply channel for supplying a welding gas towards the processing
9 location of a workpiece to be processed when the laser processing head is used for laser
10 welding.
- 1 2. The nozzle of claim 1, further comprising:
2 an inner sleeve through which the laser beam passes; and
3 an outer sleeve surrounding the inner sleeve, wherein a first cavity is formed between
4 the inner sleeve and the outer sleeve and wherein the outer sleeve includes a second
5 cavity arranged concentrically with the first cavity.
- 1 3. The nozzle of claim 2, wherein the first cavity is formed by a first annular gap between
2 the inner sleeve and the outer sleeve and wherein the second cavity is formed by a second
3 annular gap formed in the outer sleeve.
- 1 4. The nozzle of claim 2, wherein the first cavity is formed by an annular channel from
2 which a bore extends to a side of the nozzle.
- 1 5. The nozzle of claim 2, wherein the second cavity is formed by an annular channel from
2 which a bore extends to a side of the nozzle.
- 1 6. The nozzle of claim 3, wherein the first annular gap merges into the first gas supply
2 channel and the second annular gap merges into the second gas supply channel.

- 1 7. The nozzle of claim 1, further comprising a channel for supplying a stream of pressurized
2 gas into the laser processing head in a direction perpendicular to a direction of the laser
3 beam.
- 1 8. The nozzle of claim 1, further comprising a mirror for reflecting the laser beam towards
2 the processing location of a workpiece to be processed.
- 1 9. The nozzle of claim 8, wherein the mirror is a parabolic focusing mirror.
- 1 10. The nozzle of claim 1, further comprising:
2 a mirror for reflecting the laser beam towards the processing location of a workpiece
3 to be processed; and
4 a channel for supplying a stream of pressurized gas into the laser processing head in a
5 direction perpendicular to a direction of the laser beam, wherein the stream of pressurized
6 gas is supplied into the processing head between the mirror and the laser beam outlet.
- 1 11. A method for laser processing of a workpiece, the method comprising:
2 directing a laser beam through a processing nozzle of a laser processing head to a
3 processing location of a workpiece;
4 supplying a cutting gas towards the processing location through a first gas supply
5 channel of the nozzle when the laser processing head is used for laser cutting and
6 supplying a welding gas towards the processing location through a second gas supply
7 channel of the nozzle when the laser processing head is used for laser cutting; and
8 supplying a stream of pressurized gas in a direction substantially perpendicular to the
9 direction of the laser beam.
- 1 12. The method of claim 11, wherein the cutting gas and the welding gas are supplied
2 concentrically around the laser beam.
- 1 13. The method of claim 11, wherein the laser beam is a CO₂ laser beam.